UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,168	11/22/2000	Clifford Brown	21-006	3876

22898 7590 09/10/2008

LAW OFFICES OF MIKIO ISHIMARU
333 W. EL CAMINO REAL
SUITE 330
SUNNYVALE, CA 94087

EXAMINER	
KIM, KEVIN	

ART UNIT	PAPER NUMBER
2611	

MAIL DATE	DELIVERY MODE
09/10/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/722,168
Filing Date: November 22, 2000
Appellant(s): BROWN ET AL.

Mikio Ishimaru

For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 28, 2007 (and completed on January 21, 2008) appealing from the Office action mailed October 30, 2007.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The summary of claimed subject matter contained in the brief is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

4,381,546	Armstrong	4-1983

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

1. Claims 1,4,18 and 54 are rejected under 35 U.S.C. 102(b) as being anticipated by Armstrong (US 4,381,546 submitted by applicant as part of IDS filed on September 12, 2006).

Claims 1 and 54.

Armstrong teaches a device for detecting impairments in a digital quadrature amplitude modulated signal, (see the Title), comprising:

a "phase noise detector" (5C), comprising;

a "sorter," described as a calculating means, which reads data from the receiver and place it on the X/Y constellation (see col.3, lines 44-68);

a "rotator," coupled to the sorter, to rotate each point of the eye diagram (see col.4, lines 5-6); and

a "comparator coupled to the rotator," described as means of statistical properties (see col.4, line 18-21, note that for a statistically analysis a comparator is required to compare received signal points to ideal signal point vector; also see a comparison step in Fig. 9C);

a "compression detector," illustrated in Fig. 5A showing frequency offset which is an indication of compression of received signal points on the X/Y constellation);

an "interference detector," illustrated in Fig. 5B showing noise distribution around the ideal signal); and

a constellation storage coupled to the phase noise detector, the compression detector, and the interference detector. Although the constellation storage is not shown its presence is easily inferred because in order to compare the rotated signal points to the ideal signal points, "a constellation storage" must be present to prestore the ideal signal points such as shown in Fig.3A. For example, a random access memory (30) shown in Fig.7 can function as a constellation storage. See col.5, lines 22-41, teaching storing the rotated signal points.

Claims 4 and 18.

See col. 4, lines 7-13 for the recited vector. Specifically, a vector utilizing a matrix of (1-j1), -1-j1, -1+j1 and 1+j1), which are in fact cosine and sine matrix multiplied to received signal points.

Claim Rejections - 35 USC § 103

2. Claims 14, 62 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Armstrong.

Armstrong fails to teach that the interference detector (Fig.5A) comprises an error calculator, a distribution chart and a data peak detector. But Armstrong teaches comparing statistical properties of constellations and an error calculator, a distribution chart and a data peak detector would have been obviously included in the interference detector since these are well known parameters used in statistical analysis.

(10) Response to Argument

i) "Issue #1"

Regarding claims 1 and 54.

Applicant argues, at page 13, that the Armstrong patent fails to teach "a phase noise detector" because the patent teaches phase jitter and shows no apparatus. Applicant bases this argument on the reading that the calculating means of the patent uses the computational algorithm shown in Figs. 9A-9C. However, Fig.6 of the Armstrong clearly shows the outputs from the calculating means (18), one of which is phase jitter. Thus, applicant's argument that the Armstrong patent fails to teach the phase noise detector is not persuasive.

Next, applicant asserts, at page 14, that patent does not teach a sorter because it does not disclose sorting function. When read in light of the specification at page 10, the sorter recited in the claim functions to read data from a storage and arrange them on the constellation. The calculating means of the Armstrong patent performs the same function because it also reads data from the receiver (see Fig.6) and place them on the constellation (see Fig.3A-3C). Since the calculating means performs the same function of placing data on the constellation, it is not unreasonable to read the patent's calculating means as "a sorter" recited in the claim.

Applicant argues, at page 15, that the Armstrong patent fails to teach "a rotator coupled to the sorter" allegedly because it the rotator is not coupled to a sorter and the received signal is rotated by a receiver. However, As Fig.9A clearly shows, after the samples X & Y of the received signal are read or "sorted" they are phase rotated.

Applicant also argues, at page 16, that the Armstrong patent fails to teach "a comparator coupled to the rotator" allegedly because the patent performs a statistical analysis on the rotated signal. Armstrong teach comparing the rotated signal points to the ideal signal points. See Fig.3B, for example, where the phase jitter is measured compared to the ideal signal points. Also, Fig.9C shows a comparison step "IS PJR > 35," requiring a comparator.

Applicant argues, at page 17, that the Armstrong patent fails to teach "a compression detector" because it teaches detecting the frequency offset. Since the compression is defined inward movements of signal points in the constellation, it reads on the frequency offset which manifests itself by displacement of signal points away from the ideal signal points, as shown in Fig.5A.

Applicant argues, at page 18, that the Armstrong patent fails to teach "an interference detector" by quoting the specification at page 13, lines 23-25. However, it is well established that the specification is not to be read into the claim. Without more, interference is not distinguished from noise.

Applicant argues, at pages 18-19, that the Armstrong patent fails to teach "a constellation storage." However, as pointed out in the final Office action, in order to rotate signal points and then compare them to the ideal points, a storage for storing the signal points are necessary. Applicant argues that there is no disclosure in Armstrong that a comparison of rotated signal points to the ideal points occurs. Even if appellant's argument was correct, still a storage is needed to rotate and store the signal points, as evidenced at col. 5, lines 27-44.

Regarding claims 4 and 18.

These claims recite a vector consisting of cosine and sine functions used by the rotator. Similarly, the Armstrong patent teaches a vector consisting of cosines and sine function in the form of (1-ji), (-1+j1), (-1+j1) and (1+j1). Applicant fails to distinguish how the matrix recited in the claim is different from the matrix of the Armstrong patent.

ii) "Issue #2" regarding claims 14,62 and 70.

Applicant traverses the rejection of claims 14, 62 and 70, arguing that the Armstrong patent fails to describe an error calculator, a distribution chart and a data peak detector. However, these claims were rejected under 35 USC 103 as obvious over the Armstrong patent. The claims were found to have been obvious because they merely include known statistical tools such as an error calculator, a distribution chart and a data peak detector. Although the Armstrong patent does not specifically describes these statistical tools, it was proposed that it would have been obvious to include an error calculator, a distribution chart and a data peak detector since these are well known parameters in statistical analysis. Applicant fails to present why the inclusion of an error calculator, a distribution chart and a data peak detector in the Armstrong patent would not have been obvious.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/Kevin Y Kim/

Primary Examiner, Art Unit 2611

Conferees:

Chieh Fan, Ph.D.; Supervisory Patent Examiner @ AU 2611

/Chieh M Fan/

Supervisory Patent Examiner, Art Unit 2611

Shuwang Liu: Supervisory Patent Examiner @ AU 2611

/Shuwang Liu/